

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 31, 32, 37, 41, 52, 53 and 58-61 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 4,134,166 to Schuder in view of U.S. Pat. No. 4,536,906 to Varndell et al. As concerns claims 31, 32, 37, 41 and 60, Schuder shows the claimed limitations of an air-permeable mattress (11) comprising an elongated foam core (12) that defines a longitudinal axis, opposite support surfaces (39, 41) on which a person can lie, and opposite lateral sides (20), a plurality of first transverse channels that extend in parallel between the opposite lateral sides and in parallel with the opposite support surfaces, a plurality of air-filled pressure cushions (13) respectively located in the plurality of first transverse channels, and a plurality of connecting tubes (as described in column 3, lines 3-9) interconnecting multiple pressure cushions to provide zones in the foam core having equal predetermined air pressures (as described in column 3, lines 35-45 & 52-57), wherein the foam core consists of one layer (see also Figures 1-3; column 2, lines 33-68 and column 3, lines 1-2). However, Schuder does not specifically disclose the use of upper and bottom support layers each made of an air-permeable material, and a plurality of second transverse channels that extend in parallel between the opposite lateral sides of the foam core outside of the pressure cushions and are open-ended.

Varndell et al. provide the basic teaching of a mattress comprising a foam mattress body (10), an air-permeable cover (61) that completely encloses the body of the mattress, and a plurality of transverse channels (27) that extend in parallel between the opposite lateral sides of the mattress body and are open-ended (see Figures 1, 2 & 4; column 2, lines 8-30 & 64-68; and column 3, lines 1-7). The skilled artisan would have found it obvious at the time the invention was made to provide the mattress of Schuder with upper and bottom support layers each made of an air-permeable material, and a plurality of second transverse channels that extend in parallel between the opposite lateral sides of the foam core outside of the pressure cushions and are open-ended, in order to impart increased ventilation to a user positioned on the mattress, thereby helping to provide enhanced user comfort.

As concerns claims 52 and 53, Schuder as modified by Varndell et al. does not specifically disclose conditions wherein at least one pressure cushion is arranged in a zone with high pressure hardness as lordosis support and wherein the lying surface of the mattress is subdivided into seven zones. The skilled artisan would have found it obvious at the time the invention was made to provide the mattress of Schuder as modified by Varndell et al. with at least one pressure cushion arranged in a zone with high pressure hardness as lordosis support and with a lying surface that is subdivided into seven zones, since these types of modifications would have generally been recognized as being within the level of ordinary skill in the art.

With respect to claims 58 and 59, Schuder as modified by Varndell et al. does not specifically disclose a condition wherein the system overpressure in each pressure cushion (13) lies “between 0.1 bar and 0.6 bar” or is “between 0.15 and 0.30 bar.” It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide each

pressure cushion of the mattress of Schuder as modified by Varndell et al. with a system overpressure which falls “between 0.1 bar and 0.6 bar” or is “between 0.15 and 0.30 bar”, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

3. Claim 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schuder ‘166 in view of Varndell et al. ‘906 as applied to claim 60 above, and further in view of U.S. Pat. No. 2,192,601 to Mattison. Schuder as modified by Varndell et al. does not specifically disclose a condition wherein each pressure cushion (24) is configured as a solid cylinder. Mattison provides the basic teaching of a mattress (2) comprising a foam core and pressure cushions (8) arranged in openings formed within the foam core, wherein each pressure cushion is configured as a solid cylinder (see Figures 1-3; column 2, lines 33-35 & 47-55; and column 3, lines 1-3). The skilled artisan would have found it obvious at the time the invention was made to provide the mattress of Schuder as modified by Varndell et al. with pressure cushions each being configured as a solid cylinder in order to adjust further the firmness of the mattress, thereby further providing enhanced user comfort and support.

4. Claim 42 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schuder ‘166 in view of Varndell et al. ‘906 as applied to claim 60 above, and further in view of U.S. Pat. No. 3,846,857 to Weinstock. Schuder as modified by Varndell et al. does not specifically disclose a condition wherein the foam core (18) is composed of at least two layers with different degrees of

hardness. Weinstock provides the basic teaching of a foam mattress body (10) composed of at least two layers (12-15) with different degrees of hardness (see Figure 2; column 1, lines 61-67; and column 2, lines 1-32). The skilled artisan would have found it obvious at the time the invention was made to provide the mattress of Schuder as modified by Varndell et al. with a foam core composed of at least two layers with different degrees of hardness in order "to promote maximum comfort and to minimize the occurrence and severity of decubitus ulcers or bed sores" (see Weinstock '857, column 1, lines 23-29).

5. Claims 43 and 45-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schuder '166 in view of Varndell et al. '906 as applied to claims 32 and 60 above, and further in view of U.S. Pat. No. 5,586,347 to Frischknecht. Schuder as modified by Varndell et al. does not specifically disclose the use of a control valve for adjusting the pressure in a specific zone of pressure cushions; an air pump composed of elastic elements and valves, wherein the air pump is arranged in the foam core so that an air conveying process is enabled as a result of a shifting of weight of a person lying on the mattress; and wherein the air pump cooperates with a pressure control device for compensating a pressure loss as a result of leakage loss or for building up a purposeful increase in pressure in the pressure cushion. Frischknecht provides the basic teaching of a mattress comprising a control valve (5, 15) for adjusting the pressure of an air cell (4); an air pump (1) composed of elastic elements and valves, wherein the air pump is arranged in a foam core (9) so that an air conveying process is enabled as a result of a shifting of weight of a person lying on the mattress; and wherein the air pump cooperates with a pressure control device (5) for compensating a pressure loss as a result of leakage loss or for building up a purposeful increase

in pressure in the air cell (see Figures 1-4; column 1, lines 30-65; column 2, lines 16-25, 49-65; and column 3, lines 16-21). The skilled artisan would have found it obvious at the time the invention was made to provide the mattress of Schuder as modified by Varndell et al. with a control valve for adjusting the pressure in a specific zone of pressure cushions; an air pump composed of elastic elements and valves, wherein the air pump is arranged in the foam core so that an air conveying process is enabled as a result of a shifting of weight of a person lying on the mattress; and wherein the air pump cooperates with a pressure control device for compensating a pressure loss as a result of leakage loss or for building up a purposeful increase in pressure in the pressure cushion, in order to facilitate regulation of the air flow to and air exhaust from the pressure cushions, thereby further ensuring enhanced user comfort and support.

6. Claim 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schuder '166 in view of Varndell et al. '906 as applied to claim 53 above, and further in view of U.S. Pat. No. 5,115,527 to Medley. Schuder as modified by Varndell et al. does not specifically disclose a condition wherein fresh air can be supplied to the mattress through openings which are arranged parallel to the lying surface and penetrate the width of the mattress. Medley provides the basic teaching of a mattress (1) comprising a plurality of openings (4) which are arranged parallel to the lying surface (2) of the mattress and penetrate the width of the mattress (see Figures 1, 2 & 4; column 2, lines 9-66). The skilled artisan would have found it obvious at the time the invention was made to provide the mattress of Schuder as modified by Varndell et al. with openings which are arranged parallel to the lying surface and penetrate the width of the mattress and which supply fresh air to the mattress in order to "keep [a] patient [lying on the mattress] cool (by

dispersing heat) and dry, eliminating skin tissue maceration, and obviating pathogenic growth and cross infection (see Medley '527, column 2, lines 59-66).

7. Claim 56 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schuder '166 in view of Varndell et al. '906 and further in view of Medley '527 as applied to claim 56 above, and further in view of U.S. Pat. No. 2,493,067 to Goldsmith. Schuder, as modified by Varndell et al. and as further modified by Medley, does not specifically disclose a condition wherein a blower is provided for conveying the air. Goldsmith provides the basic teaching of a mattress (11) provided with a plurality of openings (19) formed therein, wherein a blower (29) forces air through the openings (see Figure 1 & 2; column 2, lines 47-60; and column 3, lines 1-16 & 29-44). The skilled artisan would have found it obvious at the time the invention was made to provide the mattress of Schuder, as modified by Varndell et al. and as further modified by Medley, with a blower for conveying the air since the use of a blower for generating air flow through openings formed in the body of a mattress has long been known in the art as taught by Goldsmith.

8. Claim 57 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schuder '166 in view of Varndell et al. '906 as applied to claim 60 above, and further in view of U.S. Pat. No. 5,802,640 to Ferrand et al. Schuder as modified by Varndell et al. does not specifically disclose a condition wherein sound-insulating material is provided in the inflow and outflow region of each pressure cushion (24). Ferrand et al. provide the basic teaching of a mattress (104) comprising a plurality of air cells (220, 222) each being provided with a valve (814) which

functions as a sound baffle (see Figures 1, 2, 43, 44A & 44B; column 38, lines 66-67; and column 39, lines 1-6). The skilled artisan would have found it obvious at the time the invention was made to provide the mattress of Schuder as modified by Varndell et al. with sound-insulating material is provided in the inflow and outflow region of each pressure cushion in order to impart further enhanced user support and comfort.

Response to Amendment

In response to Applicants' arguments on pages 6 and 7 of their amendment with respect to the Schuder patent, the examiner respectfully disagrees since each of the channels of the mattress of Schuder allows for selective air flow therein. Claims in a pending application should be given their broadest reasonable interpretation. *In re Pearson*, 181 USPQ 641 (CCPA 1974). Furthermore, in response to Applicants' arguments on page 7 of their amendment with respect to the Varndell et al. reference, the examiner also respectfully disagrees since the formation of horizontal or vertical channels in a mattress comprising a foam core is clearly within the level of ordinary skill in the art and has also long been known in the art. Hence, the claim rejections under Schuder and Varndell et al. have been respectfully maintained.

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert G. Santos whose telephone number is (571) 272-7048. The examiner can normally be reached on Monday through Friday, 11:00 a.m. to 7:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter M. Cuomo can be reached on (571) 272-6856. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Robert G. Santos/
Primary Examiner, Art Unit 3673